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## First Commercial Tec-Cement Concrete Slab a Success

On the 17th March 2005 we poured the first commercial slab in the world using tec-cement concrete with the assistance of one of the larger cement and pre-mix companies.

The house slab, a total of 80 cubic meters, was near Whittlesea in Victoria, Australia.

Our formulation strategy was to adjust a standard 20 MPa high fly ash (36%) mix from the company as a basis of comparison.

Given that there was only 180 Kg of PC per cubic meter, strength development, and in particular early strength development was good. Some 90 days later the slab is still gaining strength at the rate of about 5 MPa a month and is now well over 30MPa. Also noticeable was the fact that the concrete was not as "sticky" as it normally is with a fly ash mix and that it did not bleed quite as much.

We also did some shrinkage tests and were please to see that at 7 days, shrinkage was 133 micro strains, at 14 days, 240 micro strains, at 28 days, 316 micros strains and at 56 days, 470 microstrains - much less than normal. The slab was inspected a couple of weeks after it was poured and there were only a few very small micro cracks that were visible from a position of being on hands and knees. 80 cubic meters is a large slab for no crack control.

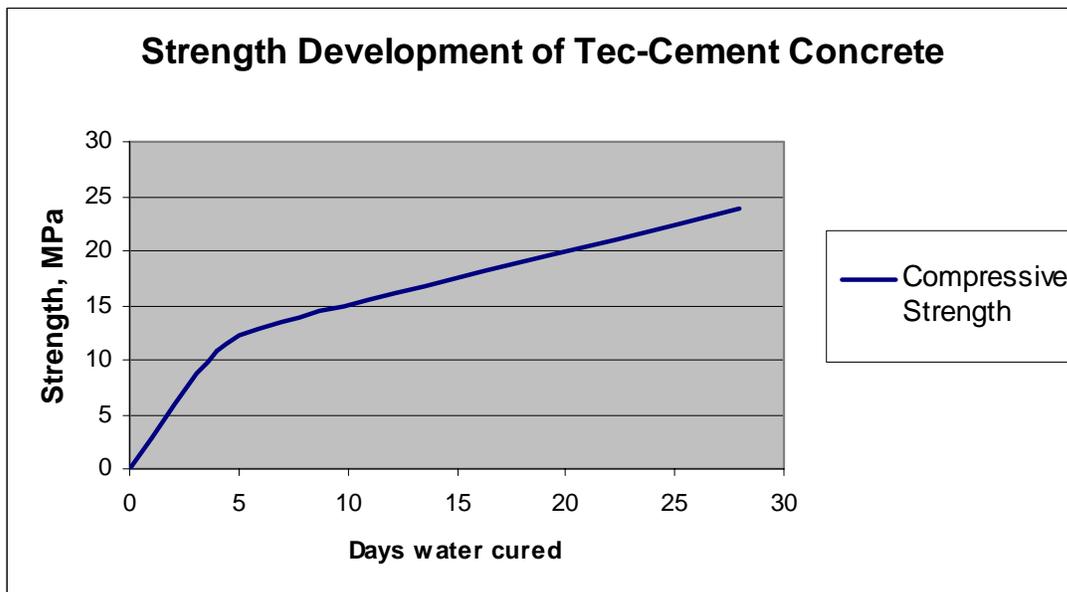


Figure 1 - Tec - Cement Strength Development (low strength high fly ash concrete)

The curve for tec-cement strength development is quite different to that of ordinary Portland cement concretes as can be seen from the plot above. Noticeable is the high early strength gain even with added fly ash and the straight line development thereafter which from our work so far appears to continue for a considerable period.



**Figure 2 - Pouring at 100+ Slump**



**Figure 3 - The Slab Drying Off (It rained!)**